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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/711,956	11/15/2000	Nobutaka Miyake	35.C14928	8490

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EXAMINER

PATEL, SHEFALI D

ART UNIT	PAPER NUMBER
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2621

DATE MAILED: 10/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/711,956

Applicant(s)

MIYAKE, NOBUTAKA

Examiner

Shefali D Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/711,956.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: On page 13 line 24 "input terminal 100" ought to be "input terminal 101".

Appropriate correction is required.

Claim Objections

2. Claim 1 is objected to because of the following informalities:

- a. Claim 1 line 1 "embedds" ought to be "embeds".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 5, 8-9, 16, 21, 25, 28, 36, and 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 1 recites the limitation "the quantization condition" in line 12 of claim 1. There is insufficient antecedent basis for this limitation in the claim.

6. Claims 5 and 25 recites the limitation "the horizontal direction" and "the vertical direction" in lines 3-4 of claims 5 and 25. There is insufficient antecedent basis for this limitation in the claim.

7. Claims 8 and 28 recites the limitation "the copyright" in line 3 of claims 8 and 28. There is insufficient antecedent basis for this limitation in the claim.
8. Claim 9 recites the limitation "the human eye" in line 4 of claim 9. There is insufficient antecedent basis for this limitation in the claim.
9. Claim 16 recites the limitation "the absolute value" in lines 2-3 of claim 16. There is insufficient antecedent basis for this limitation in the claim.
10. Claims 21 and 41 recites the limitation "the quantization condition" in line 11 of claims 21 and 41. There is insufficient antecedent basis for this limitation in the claim.
11. Claim 36 recites the limitation "the absolute value" in line 2 of claim 36. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

13. Claims 1-6, 8-16, 19-26, 28-36, and 39-44 are rejected under 35 U.S.C. 102(e) as being anticipated by Inoue et al. (USPN 6,477,276) (hereinafter, "Inoue").

With regard to **claim 1** Inoue discloses an image processing apparatus which embeds predetermined information in an image (See, col. 38 lines 10-11), the apparatus comprising: input means for entering the image (signal 71 in Fig. 1 is the input means which inputs the image

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in the system. Col. 38 lines 25-26); division means for dividing the entered image into plural image areas (division portion 12 dividing the image in plurality of blocks, col. 38 lines 30-34); quantization means for quantizing the image areas divided by said division means (quantization means 13, Fig. 1 and col. 38 lines 34-40), utilizing error diffusion method (quantization means goes to the replacement portion 14 to change the condition (i.e., values) of the quantization values depending on the embedding information, col. 38 lines 34-43. Later, Inoue discloses the error calculation portion 65 at col. 60 lines 37-45); and control means for controlling (control means include of element 14, 15 and 16 in Fig. 1), in a unit of the image area, the quantization condition by said quantization means according to the predetermined information (these three units control the quantization value on the basis of the information to be embedded in the block. See, col. 38 lines 40-56).

With regard to **claim 2** Inoue discloses quantization condition that is a quantization threshold value (quantization threshold value is either $q+1$ or $q-1$ at col. 38 lines 37-43).

With regard to **claim 3** Inoue discloses quantization condition changes the quantization threshold value based on a predetermined period (the two values $q+1$ and $q-1$ is based on the predetermined period of the information being embedded, col. 38 lines 40-46).

With regard to **claim 4** Inoue discloses control means switches the predetermined period for changing the quantization threshold value in the unit of said image area (the predetermined period for changing the threshold value is in the unit of the image area because the values are used to obtain the mean values M' and these values are related to the image area, col. 38 lines 45-59).

With regard to **claim 5** Inoue discloses control means that switches the period in the horizontal direction and the period in the vertical direction for changing the quantization threshold value in the unit of the image area. (As clearly seen in Figure 21(b) that the period is in the horizontal and vertical direction for block HL3, col. 53 lines 65-67 to col. 54 lines 1-6).

With regard to **claim 6** Inoue discloses plural kinds of the predetermined periods (i.e., horizontal and vertical) and switches the predetermined period in the unit of the image area (as clearly seen in Figs. 21(a) and 21(b)).

With regard to **claim 8** Inoue discloses predetermined information being related to the copyright of the image (See, col. 39 lines 11-14).

With regard to **claim 9** it is inherent that the information embedded in the image is done in such a manner not easily visible to the human eye.

With regard to **claim 10** Inoue discloses an image processing apparatus which extracts predetermined information (See, col. 48 lines 45-47) from an image in which the predetermined information is embedded (See, col. 46 lines 50-67), the apparatus comprising: input means for entering the image (signal 71 in Fig. 111 is the input means which inputs the image in the system. Col. 46 lines 66-67); transformation means (transformation means 31, col. 48 lines 51-52.) for executing frequency transformation on the image areas divided by said division means (image that is divided by division as explained in claim 1 which was first divided into different frequency bands as described in Figs. 33-35); classification means (i.e., judgment portion 22, col. 48 line 53) for classifying the image areas into plural classes based on the transformation process of said transformation means (the judgment portion 22 classifies the image based on the

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quantization value which was obtained thru the process of transformation and quantization means, col. 43 lines 53-57); and extraction means for extracting the predetermined information, based on a feature amount of each class thus classified (extracting means 2b in Fig. 15, col. 48 lines 43-53).

With regard to **claim 11** Inoue discloses an orthogonal transformation 31 at col. 48 lines 51-52.

With regard to **claim 12** Inoue discloses comparison means (comparison means included in judgment portion, col. 61 lines 5-7) for comparing the feature amount of the classified classes (amount of the classified classes are compared which is obtained after the error calculation portion 65 after the transformation, col. 60 lines 37-45); wherein said extraction means extracts said predetermined information based on the result of comparison by said comparison means (See, col. 61 lines 25-35).

With regard to **claim 13** Inoue discloses evaluation means for evaluating result of evaluation (as a prior art, Inoue discloses evaluating the image using three dividing filters, see col. 1 lines 60-67, also see Fig. 21(a) part LL1, LH1, HL1, and HH1.); and re-division means for executing again the division process of said division means, based on the result of evaluation by said evaluation means (re-division on each of the evaluation part into image signal 71 representing at col. 2 lines 4-19, Fig. 21(a) part LL1, LH2, HL2, HH2, etc.).

With regard to **claim 14** Inoue discloses re-division means executing division again by changing the dividing position of the division (position of the division changed from the entire block seen in Fig. 21 to within the block LL1).

With regard to **claim 15** Inoue discloses re-division means executing division again by changing the size of division (the size of the division is changing as seen in Fig. 21. Size of LH2 is different than size of LH3, etc.).

With regard to **claim 16** Inoue discloses feature amount being the absolute value of coefficients of transformation by said transformation means (See, col. 57 lines 59-61).

Claim 19 recites identical features as claim 8. Thus, arguments similar to that presented above for claim 8 is equally applicable to claim 19.

Claim 20 recites identical features as claim 9. Thus, arguments similar to that presented above for claim 9 is equally applicable to claim 20.

Claim 21 recites identical features as claim 1 except claim 21 is a method claim. Thus, arguments similar to that presented above for claim 1 is equally applicable to claim 21.

Claim 22 recites identical features as claim 2 except claim 22 is a method claim. Thus, arguments similar to that presented above for claim 2 is equally applicable to claim 22.

Claim 23 recites identical features as claim 3 except claim 23 is a method claim. Thus, arguments similar to that presented above for claim 3 is equally applicable to claim 23.

Claim 24 recites identical features as claim 4 except claim 24 is a method claim. Thus, arguments similar to that presented above for claim 4 is equally applicable to claim 24.

Claim 25 recites identical features as claim 5 except claim 25 is a method claim. Thus, arguments similar to that presented above for claim 5 is equally applicable to claim 25.

Claim 26 recites identical features as claim 6 except claim 26 is a method claim. Thus, arguments similar to that presented above for claim 6 is equally applicable to claim 26.

Claim 28 recites identical features as claim 8 except claim 28 is a method claim. Thus, arguments similar to that presented above for claim 8 is equally applicable to claim 28.

Claim 29 recites identical features as claim 9 except claim 29 is a method claim. Thus, arguments similar to that presented above for claim 9 is equally applicable to claim 29.

Claim 30 recites identical features as claim 10 except claim 30 is a method claim. Thus, arguments similar to that presented above for claim 10 is equally applicable to claim 30.

Claim 31 recites identical features as claim 11 except claim 31 is a method claim. Thus, arguments similar to that presented above for claim 11 is equally applicable to claim 31.

Claim 32 recites identical features as claim 12 except claim 32 is a method claim. Thus, arguments similar to that presented above for claim 12 is equally applicable to claim 32.

Claim 33 recites identical features as claim 13 except claim 33 is a method claim. Thus, arguments similar to that presented above for claim 13 is equally applicable to claim 33.

Claim 34 recites identical features as claim 14 except claim 34 is a method claim. Thus, arguments similar to that presented above for claim 14 is equally applicable to claim 34.

Claim 35 recites identical features as claim 15 except claim 35 is a method claim. Thus, arguments similar to that presented above for claim 15 is equally applicable to claim 35.

Claim 36 recites identical features as claim 16 except claim 36 is a method claim. Thus, arguments similar to that presented above for claim 16 is equally applicable to claim 36.

Claim 39 recites identical features as claim 19 except claim 39 is a method claim. Thus, arguments similar to that presented above for claim 19 is equally applicable to claim 39.

Claim 40 recites identical features as claim 20 except claim 40 is a method claim. Thus, arguments similar to that presented above for claim 20 is equally applicable to claim 40.

Claim 41 recites identical features as claim 1 except claim 41 is a computer readable memory medium claim. Thus, arguments similar to that presented above for claim 1 is equally applicable to claim 41. Applicant's attention is invited to col. 63 lines 9-14 of Inoue for a computer readable memory medium.

Claim 42 recites identical features as claim 10 except claim 42 is a computer readable memory medium claim. Thus, arguments similar to that presented above for claim 10 is equally applicable to claim 42. Applicant's attention is invited to col. 63 lines 9-14 of Inoue for a computer readable memory medium.

Claim 43 recites identical features as claim 1, except claim 43 is an apparatus claim for adding information to an image (i.e., embedding information to an image). Thus, arguments similar to that presented above for claim 1 is equally applicable to claim 43.

Claim 44 recites identical features as claim 21, except claim 44 is a method claim for adding information to an image (i.e., embedding information to an image). Thus, arguments similar to that presented above for claim 21 is equally applicable to claim 44.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 7, 18, 27, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue in view of Hayashi, et al. (USPN 6,535,616) (hereinafter, "Hayashi").

With regard to **claim 7** Inoue discloses predetermined information. Inoue does not expressly disclose predetermined information being audio information. Hayashi discloses predetermined information being audio information (see, col. 24 lines 35-47). Inoue and Hayashi are combinable because they are from the same field of endeavor, i.e., embedding information in the image. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Hayashi with Inoue. The motivation for doing so is that having audio information for the predetermined information is suggested by Hayashi at col. 24 lines 35-41. Therefore, it would have been obvious to combine Hayashi with Inoue to obtain the invention as specified in claim 7.

Claim 18 recites identical features as claim 7 except claim 18 is apparatus for extracting claim. Thus, arguments similar to that presented above for claim 7 is equally applicable to claim 18.

Claim 27 recites identical features as claim 7 except claim 27 is a method claim. Thus, arguments similar to that presented above for claim 7 is equally applicable to claim 27.

Claim 38 recites identical features as claim 18 except claim 38 is a method for extracting claim. Thus, arguments similar to that presented above for claim 18 is equally applicable to claim 38.

16. Claims 17 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue in view of Yuan, et al. (USPN 5,821,986) (hereinafter, "Yuan").

With regard to **claim 17** Inoue discloses a feature amount as described in claim 10. Inoue does not expressly disclose the feature amount being electric power. Yuan discloses the feature amount being electric power (see, col. 6 lines 54-59). Inoue and Yuan are combinable because they are from the same field of endeavor, i.e., encoding/decoding the image. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Yuan with Inoue. The motivation for doing so is that Yuan suggests at col. 6 lines 54-59 that for faster calculation with less time computation power, this feature allows for communication for decoding reasons. Therefore, it would have been obvious to combine Yuan with Inoue to obtain the invention as specified in claim 17.

Claim 37 recites identical features as claim 17 except claim 37 is a method for extracting claim. Thus, arguments similar to that presented above for claim 17 is equally applicable to claim 37.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 2003/0138126 A1 – Image attribute altering device and electronic watermark embedding device. See, paragraph 0082 and 0099.

USPN 6,529,506 – Data processing apparatus and data recording media. See, Figs. 4, 6 and 7.

Jang, et al., “Segmentation Based Wavelet Coding of Digital Images,” IEEE, 1996, pp. 1878-1881.

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Kundur, et al., "A Robust Digital Image Watermarking Method using Wavelet-Based Fusion," IEEE Signal Processing Society 10/1997 International Conference on Image Processing (ICIP'97), pp. 544—547.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shefali D Patel whose telephone number is 703-306-4182. The examiner can normally be reached on M-F 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H Boudreau can be reached on 703-305-4706. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.


DANIEL MARIAM
PRIMARY EXAMINER

Shefali D Patel
Examiner
Art Unit 2621

October 7, 2003